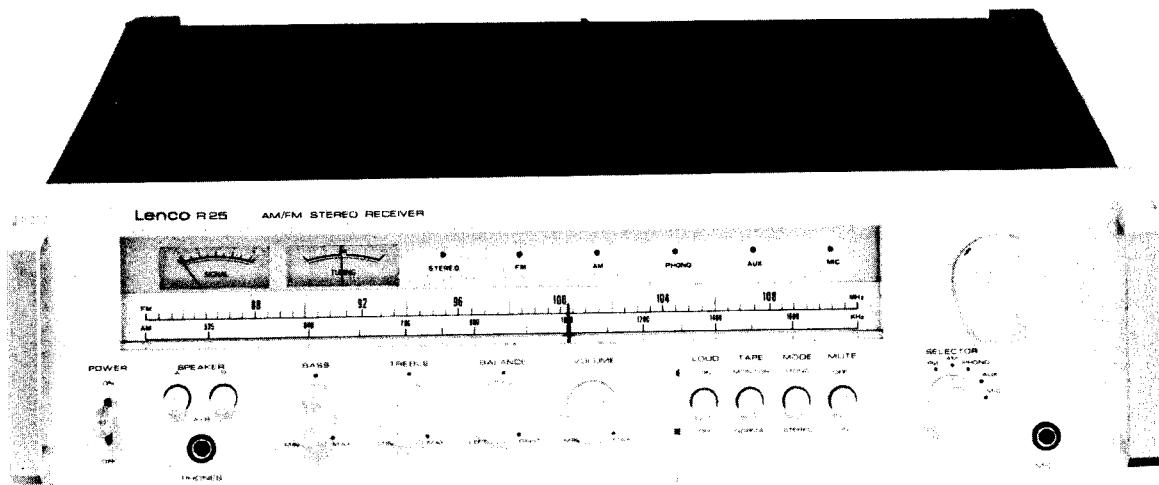


# Service Manual



# Lenco

Stereo Receiver R 25

## **Correct Ordering of Spare Parts**

When ordering spare parts please specify the complete name, part number, and the relevant page number of the service manual for each required part.  
By this method you will be sure to obtain the required part.

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## Lenco R 25

The R 25 receiver conforms to the most recent technical developments. Its functional design includes arrangement of all operating controls for convenient operation.

### Technical Data

#### Amplifier Section

Nominal Power, 8 Ω	2×19 W
Distortion at 1 kHz with output from both channels, 19 W	0.5 %
Frequency Response	10—40,000 Hz
Power Bandwidth	20—20,000 Hz
Sensitivity, Phono	2.5 mV / 50 kΩ
Equalization, Phono	RIAA ± 1.5 dB
Sensitivity, Microphone	2.5 mV / 50 kΩ
Sensitivity, AUX, TAPE	160 mV / 50 kΩ
Treble Control	±10 dB at 10 kHz
Bass Control	±10 dB at 100 Hz
Loudness	+ 7 dB at 100 Hz + 4 dB at 10 kHz
Weighted S/N Ratio, to DIN	≥ 60 dB ≥ 62 dB ≥ 52 dB at 1 kHz ≥ 33 dB at 10 kHz
— Phono	
— AUX, TAPE	
Cross Talk	

#### FM Section

Antenna Connections	240—300 Ω Sym. 60—75 Ω Asym. 87.5—108 MHz
Tuning Range	1.8 μV
Sensitivity (mono, 60 Ω input, 26 dB S/N △ f = 40 kHz)	1.5 μV
Limiting level	0.2 %
Distortion, mono	≥ 55 dB
S/N Ratio (mono, input 1 mV)	1.5 dB
Capture Ratio	≥ 90 dB
IF Rejection	≥ 80 dB
Image Rejection	20—15,000 Hz
Frequency Response	≥ 40 dB
Channel Separation	5 μV
Stereo switching level	
AM Section	
Frequency Range MW	525—1650 kHz
Sensitivity (S/N 20 dB)	30 μV (ant. input)
Distortion	2 %
Image Rejection	≥ 45 dB
S/N Ratio	≥ 45 dB
General Data	
Power Consumption	150 W max.
Dimensions	490×390×132 mm
Weight	11 kg

## General Troubleshooting Chart

If the set is otherwise operating satisfactorily, the more common causes of trouble may be generally attributed to the following:

1. Incorrect connections or loose terminal contacts. Check the connection of speaker, record player, tape recorder, antenna and power cord.

2. Improper operation. Before operating any audio component, be sure to read the manufacturer's instructions.
3. Improper location of audio components. The proper positioning of components, such as speakers and turntable, is vital to stereo.
4. Defective audio components. The following are some other common causes of malfunction and what to do about them.

Program	Symptom	Probable cause	What to do
AM, FM, MPX reception	1. Constant or intermittent noise heard at times or in a certain area	1. Discharge or oscillation caused by electrical appliances, such as fluorescent lamp, TV set, D.C. motor rectifier or oscillator 2. Natural phenomena, such as atmospheric static or thunderbolts 3. Insufficient antenna input due to ferroconcrete wall or long distance from the station 4. Interference from other electrical appliances	1. Attach a noise limiter to the electrical appliance causing the noise, or to the amplifiers power sources 2. Install an outdoor antenna and ground the set to raise the signal-to-noise ratio 3. Reverse the power cord plug 4. If the noise occurs at a certain frequency, attach a wave trap to the antenna input 5. Keep the set at a proper distance from other electrical appliances
	2. The needle of the signal and tuning meter does not move very much	1. The set is located in a weak signal area 2. An FM or TV broadcasting station is near at hand	1. Place the set to receive maximum signal strength 2. Ground the set to the earth
	3. The zero point of the meter not stable	1. Regional difference in field intensity	1. The unit is not at fault
AM reception	1. Noise heard at a particular time of a day in a certain area of any part of dial	1. Due to the nature of AM broadcast	1. In some cases, the noise can be eliminated by grounding the set, reversing the power cord plug or receptacle connections
	2. High-frequency noise	1. Adjacent channel interference or beat interference 2. TV set too close to audio system	1. Although such noise cannot be eliminated by the set, it is advisable to adjust the TREBLE control from midpoint to left and switch on the HIGH FILTER 2. Keep the TV set at a proper distance from the audio system
	3. Broadcasting interference	1. Antenna's input sensitivity is too strong	1. Connect resistor (1K-10K) in series to antenna terminal

Program	Symptom	Probable cause	What to do
FM reception	1. Noisy	1. Poor noise limiting effect or too low S/N ratio due to insufficient antenna input  <b>Note:</b> FM reception is affected considerably by transmission condition of station power and antenna efficiency. As a result, you may receive one station quite well while receiving another station poorly	1. Install the antenna for maximum signal strength 2. If this does not prove effective, use an outdoor antenna designed exclusively for FM. When you use a TV antenna for both TV and FM with a divider make sure TV reception is not affected 3. An exclusively long antenna may cause noise
	2. Noise heard like scratching	1. Ignition noise caused by an automobile engine	1. Install the antenna and its lead-in wire in proper distance from the road or raise the antenna input as described above
	3. Tuning noise between stations	1. This results from the nature of the FM reception. As the station signal becomes weak, the noise limiter effect is decreased and the amplification of the limiter, in turn, is enlarged generating noise	1. Turn the MUTING switch on. It reduces the sensitivity, and therefore it should be used sparingly
FM/MPX reception	1. Noise heard during FM/MPX reception while not heard during FM mono reception	1. Weaker signal because the service area of the FM/MPX broadcast is only half that of the FM mono broadcast	1. Install the antenna for maximum antenna input 2. Switch on the high filter and/or turn the TREBLE control from midpoint to left 3. Switch to mono
	2. Clearness of channel separation decreases during reception	1. Excess heat in IC	1. Circulation of air is important to the set. Be sure that air is flowing under the set 2. Switch off for a time
	3. The stereo indicator blinks on and off	1. Interference 2. Too weak RF signal	1. The indicator is not at fault, adjust VR 101 2. Switch to mono
Record playing or tape playback	1. Hum or howling	1. Record player placed too close to speaker 2. Wire other than shielded wire used 3. Loose terminal contact 4. Shielded wire too close to line cord, fluorescent lamp or other electrical appliances 5. Nearby amateur radio station or TV transmission antenna	1. Place a cushion between the player and the speaker or place them further away from each other 2. The connecting shielded wire should be as short as possible 3. Switch on the LOW FILTER and adjust the BASS control from midpoint to left 4. Consult the nearest Radio Regulatory Bureau
	2. Surface noise	1. Worn or old record 2. Worn stylus 3. Stylus dusty 4. Improper needle pressure	1. Recondition the playback head of the tape recorder or the stylus of the record player 2. Adjust the TREBLE control 3. HIGH FILTER on
All stereo programs	BALANCE control is not at midpoint when equal sound comes from left and right channels	It is important to adjust for equal sound comes from both channels. It should not always be set to the midpoint	Set the MODE switch to mono and then set the BALANCE control to a position where equal sound comes from both channels

## FM Alignment Procedure

Step	Align	Generator	Dial setting	Adjust	Adjust for
1.	IF			Front end IF	Maximum noise output
2.	Discriminator	1) Sweep generator 2) 98 MHz 400 Hz	98 MHz	FM detector T101 top and bottom core T101 Top core T101 Front end IF	Maximum S curve Center meter Center position Minimum distortion Minimum distortion
3.	OSC	88 MHz 400 Hz 75 kHz deviation	88 MHz	Front end Lo	Maximum
4.	OSC	108 MHz 400 Hz 75 kHz deviation	108 MHz	Front end Tco	Maximum
5.	Reiterate 3 and 4				
6.	High-frequency Amp. circuit	90 MHz 400 Hz 75 kHz deviation	90 MHz	Front end LR1, LR2, LA	Maximum
7.	High-frequency Amp. circuit	106 MHz 400 Hz 75 kHz deviation	106 MHz	Front end TCR1, TCR2, TCA	Maximum
8.	Reiterate 6 and 7				
9.	FM Stereo lamp			VR101	19 kHz setting with frequency counter connected to P123
10.	Stereo separation	98 MHz 400 Hz 75 kHz deviation one channel only	98 MHz	VR102	Maximum output difference between P119, P120 output from L output and that from R output of SSG

Note: To align, connect the output of FM SSG to 75 ohm antenna terminal and connect the FM output P119 or P120 to VTVM or oscilloscope to indicate output.

## AM Alignment Procedure

Step	Align	SSG	Dial setting	Adjust	Adjust for
1.	IF	455 kHz $\pm$ 30 kHz		IFT1 T003 IFT2 T004	Best IF curve Maximum
2.	OSC	535 kHz 400 Hz 30 % modulation	535 kHz	OSC T002	Maximum
3.	OSC	1600 kHz 400 Hz 30 % modulation	1,600 kHz	OSC trimmer Front end AM2	Maximum
4.	Reiterate 2 and 3				
5.	RF AMP	600 kHz 400 Hz 30 % modulation	600 kHz	RF coil T001	Maximum
6.	Antenna Circuit	1,400 kHz 400 Hz 30 % modulation	1,400 kHz	Front end AM1, AM3	Maximum

Note: To align, connect AM S.S.G. to AM antenna terminal and connect oscilloscope and VTVM to P008 to indicate output.

## Protection Circuit

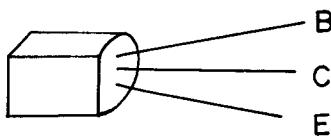
### Current Limiter 'L'

This circuit is designed as a protection circuit to protect the speakers and power transistors from damage when the output current increases due to an output short or overload.

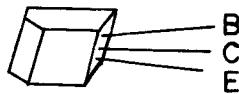
If the current through R520 and R521 gives a voltage drop across the resistors which is greater than the turn on voltage of Q506 and Q508, then Q506 and Q508 are turned on and the input to Q504 and Q509 is shunted.

Hence this circuit protects the power transistors and speakers from damage by limiting the current.

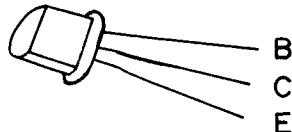
## Transistor Views



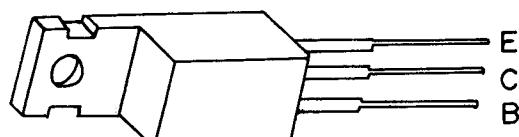
2SC 828



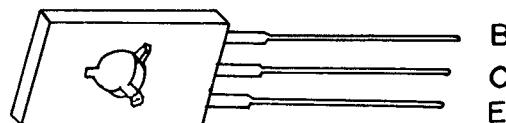
2SC 1166  
2SA 661



2SA 841      2SC 733  
2SA 561      2SC 734  
2SC 374      2SC 1681  
2SC 381  
2SC 732

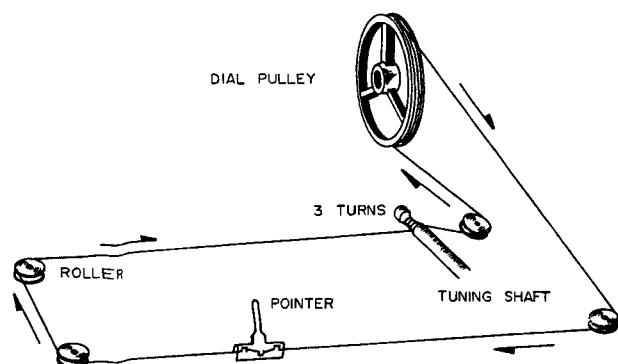


2SC 789



2SA 794

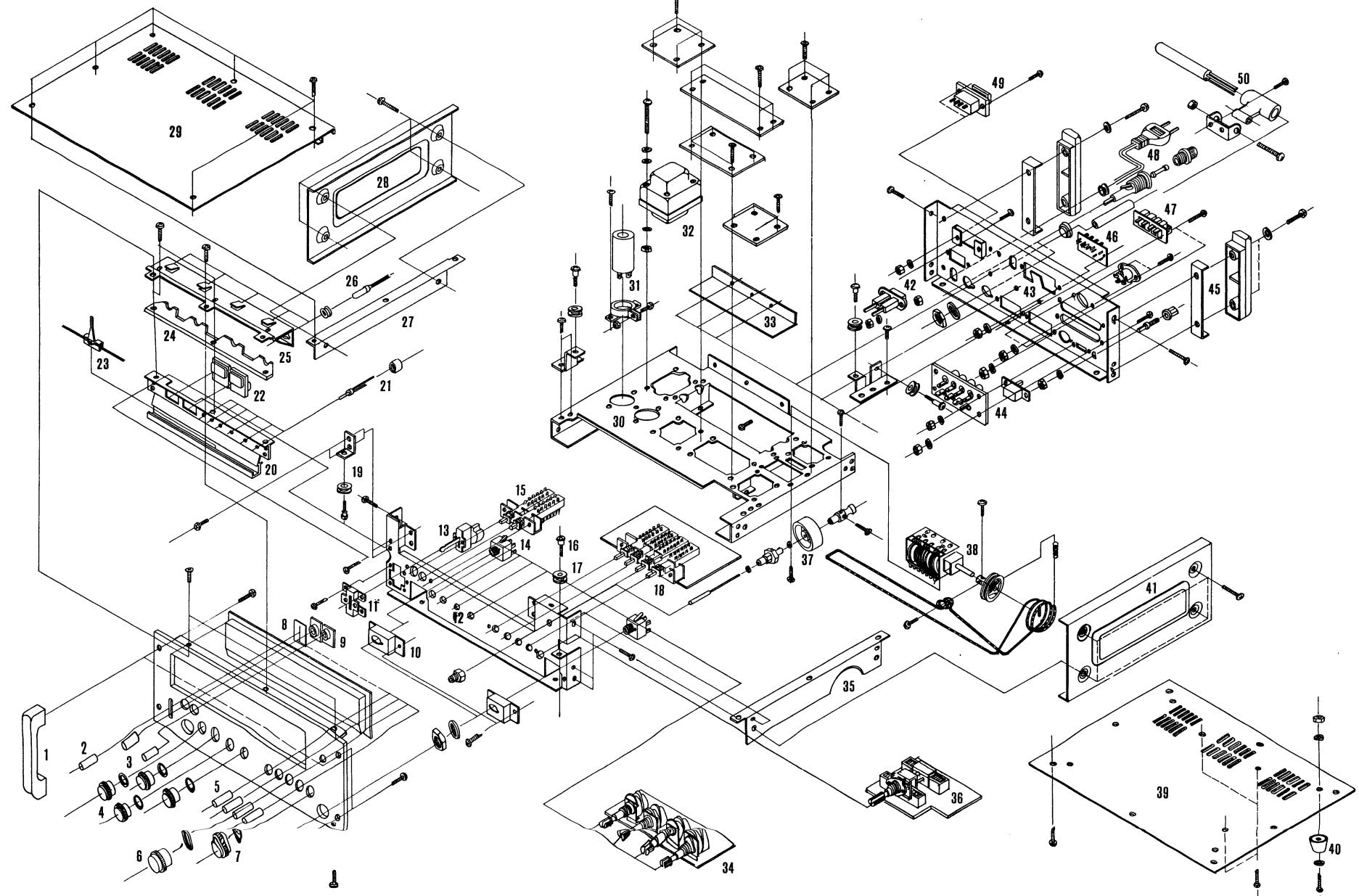
## R-25 DIAL CORD STRINGING



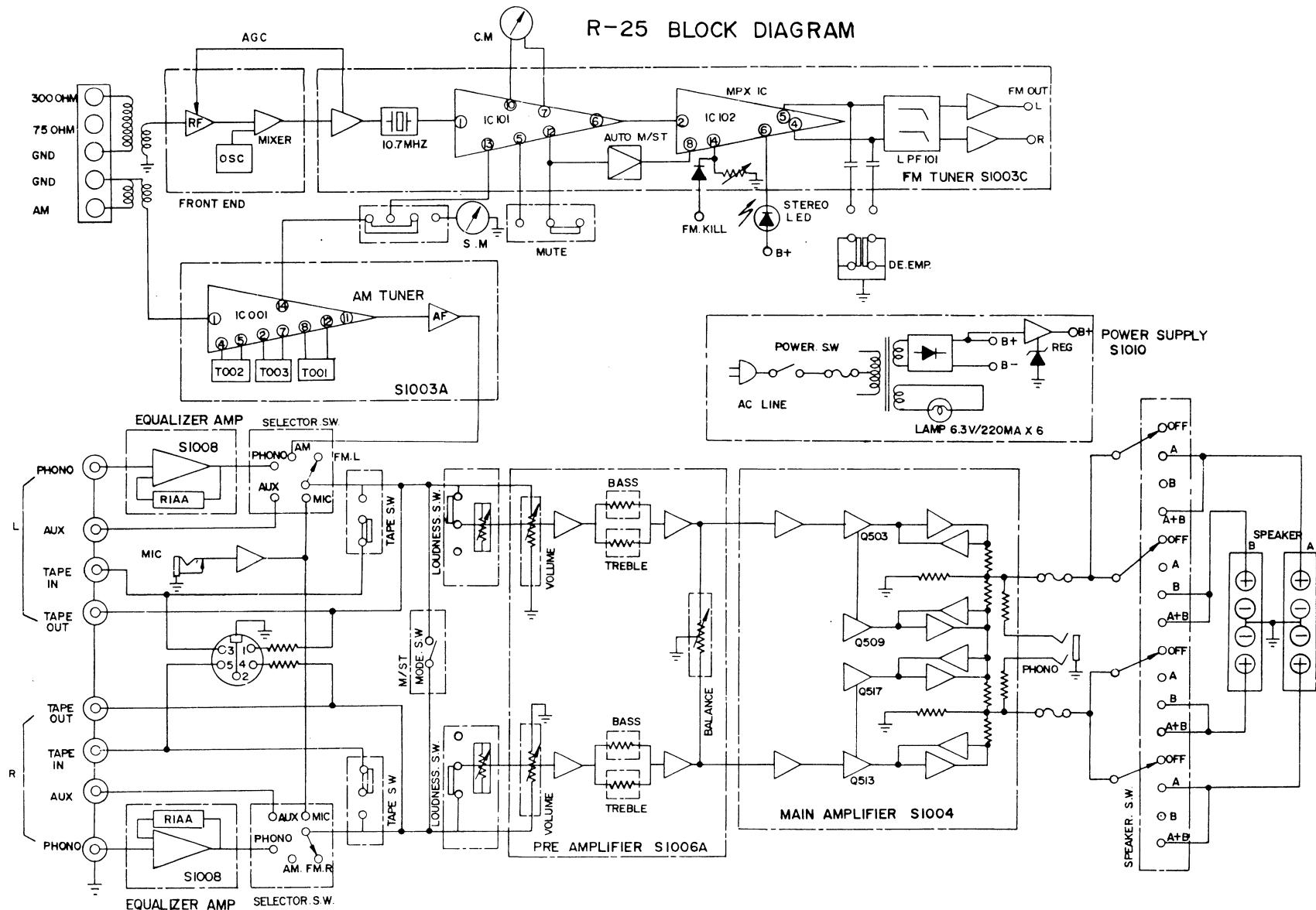
## Description of Exploded View

1. Handle
2. Knob
3. Knob
4. Knob
5. Knob
6. Knob
7. Knob
8. Felt (lever switch)
9. Bezel (push switch)
10. Bracket, phone jack
11. Bracket, power switch
12. Front frame
13. Power switch
14. Phone jack
15. Speaker switch
16. Pivot
17. Roller
18. Push switch
19. Roller
20. Scale
21. LED, LED holder
22. Meter (tuning, signal)
23. Dial pointer
24. Acryl reflector
25. Bracket, lamp holder
26. Lamp, grommet
27. Bracket, left side
28. Cover, left side
29. Cover upper
30. Main frame
31. Elect. cap. 4700 uF/35 wV
32. Power transformer
33. Heat sink
34. P.C.B. pre-amp.
35. Bracket, right side
36. P.C.B. switch
37. Tuning mechanism assy
38. Front end
39. Bottom cover
40. Rubber foot
41. Cover, right side
42. AC socket
43. Rear frame
45. Socket protector
46. Antenna terminal
47. Speaker terminal
48. AC cord with plug
49. Voltage selector
50. AM antenna assy

R25 EXPLODED VIEW

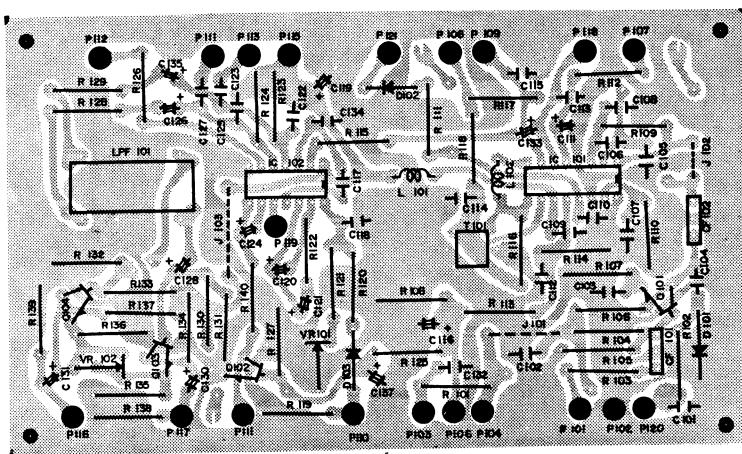
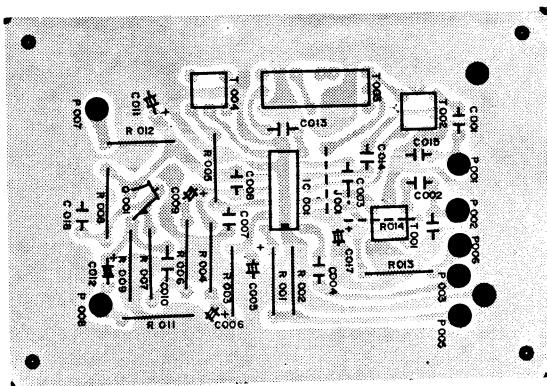


## R-25 BLOCK DIAGRAM



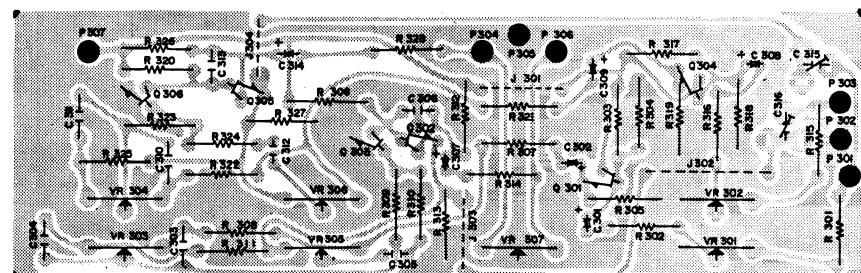
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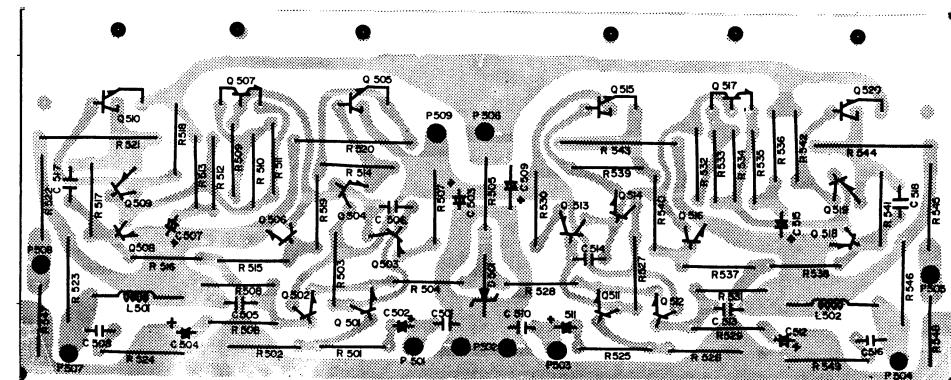


SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R 001	1.5K	C 001	470 P	C 015	20 P
R 002	1 K	C 002	0.047-1SR400	C 016	SR400
R 003	10K	C 003	0.01 UF	C 017	4.7UF16V
R 004	10K	C 004	0.01UF	C 018	0.004UF
R 005	270 OHM	C 005	IUF 50WV	Q 001	2SC 733
R 006	1.5K	C 006	10UF 16V	I C 001	HA-1151
R 007	3.9K	C 007	0.002 UF	T 001	AM RF COIL SR-400
R 008	1.5M	C 008	0.01 UF	T 002	AM OSC COIL
R 009	3.9K	C 009	0.047UF	T 003	AM IFT -1
R 010	"	C 010	0.047UF	T 004	AM IFT -2
R 011	100K	C 011	47UF16V	J 001	"
R 012	270	C 012	0.01UF16V		
R 013	470	C 013	0.01UF		
R 014	3.9K	C 014	0.01UF		

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R 101	220 $\Omega$ 1/4W $\pm 5\%$	R 119	100K 1/4W $\pm 5\%$	R 138	100K 1/4W $\pm 5\%$	C 116	1MF50WV	C 135	47MF16WV
R 102	820 "	R 120	22K "	R 139	100K "	C 117	0.047MF $\pm 5\%$ (P)	C 136	
R 103	100 "	R 121	18K "	R 140	10K "	C 118	470P $\pm 5\%$ (P)	C 137	47MF16WV
R 104	47K "	R 122	1K "	C 101	0.044MF $\pm 5\%$	C 119	100MF16WV	D 101	1N60
R 105	680 "	R 123	3.9K "	C 102	0.047 "	C 120	0.22MF50WV	D 102	MA161
R 106	330 "	R 124	3.9K "	C 104	0.02 "	C 121	0.47MF50WV	D 103	MA161
R 107	560 "	R 125	100K "	C 105	0.047 "	C 122	0.02MF $\pm 5\%$ (H)	Q 101	2SC 381
R 108	"	R 126	1.2K "	C 106	0.047 "	C 123	0.02MF $\pm 5\%$ (H)	Q 102	2SC 733
R 109	330 "	R 127	12K "	C 107	0.047 "	C 124	0.47MF50WV	Q 103	2SC 732
R 110	10K "	R 128	1.2K "	C 108	0.047 "	C 125	0.01MF $\pm 5\%$ (H)	Q 104	2SC 732
R 111	22K "	R 129	1.2K "	C 109	0.047 "	C 126	4.7MF16WV		
R 112	22K "	R 130	47K "	C 108	0.047 "	C 127	0.01MF $\pm 5\%$ (H)	IC 101	MA1137
R 113	2.2K "	R 131	5.6K "	C 109	0.047 "	C 128	4.7MF16WV	IC 102	MA1156
R 114	47K "	R 132	5.6K "	C 110	0.047 "	C 129	47MF16WV	L 101	2.2 $\mu$ H
R 115	:00 "	R 133	47K "	C 111	47MF16WV	C 130	1MF50WV	L 102	18 $\mu$ H
R 116	3.9K "	R 134	4.7K "	C 112	0.047MF $\pm 5\%$	C 131	1MF50WV	VR 101	47K
R 117	330 "	R 135	680 "	C 113	180P $\pm 10\%$	C 132	0.02MF $\pm 5\%$	VR 102	47K
R 118	5.6K A	R 136	680 "	C 114	0.047MF $\pm 5\%$	C 133	4.7MF16WV	L-P-F	170 BLR
		R 137	4.7K B	C 115	0.047MF $\pm 5\%$	C 134	680P $\pm 10\%$	J 101-3	DJUMP WIRE



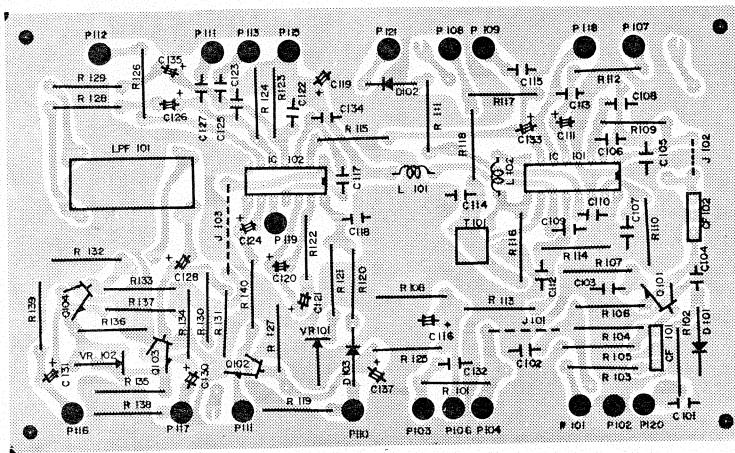
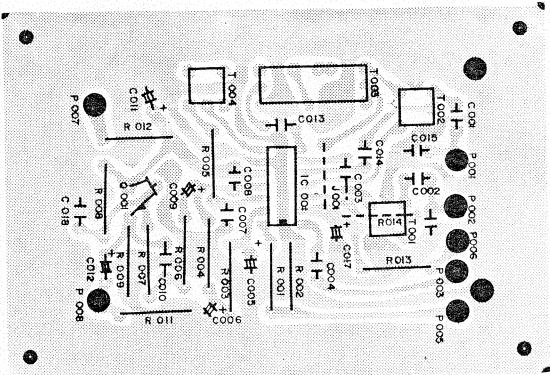
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R301	10K 1/4W ± 5%	R316	3.9K 1/4W ± 5%	C301	2.2μF 16WV(C-T)	VR301	100K A 1/2
R302	3.9K "	R317	220K "	C302	4.7μF 16WV	VR302	100K A 1/2
R303	220K "	R318	220K "	C303	0.047μF ± 5% (M)	VR303	100K B 1/2
R304	220K "	R319	27K "	C304	0.047μF ± 5% (M)	VR304	100K B 1/2
R305	27K "	R320	150K "	C305	0.001μF ± 5% (M)	VR305	100KB 1/2
R306	150K "	R321	470 "	C306	30P ± 10%	VR306	100KB 1/2
R307	470 "	R322	10K "	C307	4.7μF 16WV	VR307	100KB 1/2
R308	10K "	R323	22K "	C308	2.2μF 16WV(C-T)	J301-4	JUMP WIRE
R309	22K "	R324	4.7K "	C309	4.7μF 16WV		
R310	4.7K "	R325	10K "	C310	0.047μF ± 5% (M)		
R311	10K "	R326	4.7K "	C312	0.001μF (M)		
R312	4.7K "	R327	680 "	C313	30P		
R313	680 "	R328	1K "	C314	4.7μF 16WV		
R314	1K "			C315	TC 30P		
R315	10K "			C316	TC 30P		



SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R501	1K 1/2W ± 5%	R517	120 1/2W ± 5%	R535	1.5K 1/4W ± 5%	C503	1μF 50WV	Q501	2SC 374
R502	68K "	R518	200 "	R536	1.2K "	C502	0.47μF 50WV	Q502	2SC 374
R503	27K "	R519	0.27 " 2W	R537	10K "	C503	1μF 50WV	Q503	2SA 661
R504	10K "	R520	0.27 " 2W	R538	10K "	C504	4.7μF 16WV	Q504	2SC 1165
R505	820 "	R521	0.27 " "	R539	120 "	C506	56P ± 10%	Q505	D526
R506	39K "	R522	270 1/2W ± 5%	R540	200 "	C507	22μF 35WV	Q506	2SC 734
R507	15 "	R523	3.3 "	R541	200 "	C508	0.047μF ± 3%	Q507	2SC 828
R508	68K "	R524	10 "	R542	120 "	C509	1μF 50WV	Q508	2SA 561
R509	680 "	R525	1K 1/4W ± 5%	R543	120 "	C510	4.7μF 16WV	Q509	2SA 661
R510	.5K "	R526	68K "	R544	0.27 2W	C511	0.47μF 50WV	Q510	2SD 526
R511	680 "	R527	2.7K "	R545	0.27 2W	C512	4.7μF 16WV	Q511	2SC 374
R512	1.5K "	R528	10K "	R546	270 1/2W ± 5%	C514	56P ± 10%	Q512	2SC 374
R513	1.2K "	R529	3.9K "	R547	3.3 "	C516	0.047μF ± 3%	Q513	2SA 661
R514	120 "	R530	15 "	R548	15 "	C517	0.02 "	Q514	2SC 1166
R515	10K "	R531	68K "	R549	15 "	C518	0.02 "	Q515	2SD 526
R516	10K "	R532	680 "	R550	10 "	L501	MZ 11B	Q516	2SC 734
R517	200 "	R533	1.5K "	C501	470P ± 10%	L501	2.7μH	Q517	2SA 561
		R534	680 "	C502	0.47μF 50WV	L502	2.7μH	Q518	2SA 661
		A		B				D	

P.C.B. and Parts List R25  
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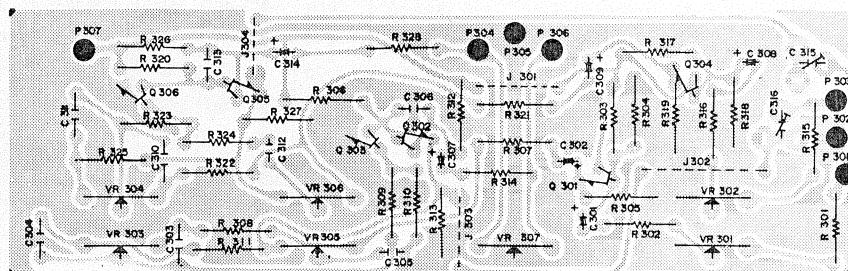
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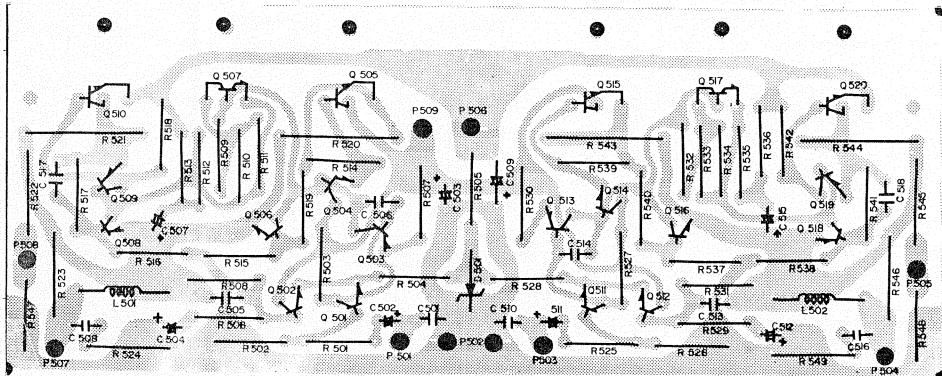
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R 001	1.5K	C001	470 P	C015	20 P SR400
R 002	1 K	C002	0.047(SR400)	C016	10 P
R 003	10K	C003	0.01UF	C017	4.7UF16V
R 004	10K	C004	0.01UF	C018	0.004UF
R 005	270 OHM	C005	IUF 50WV	Q101	2SC733
R 006	1.5K	C006	I0UF 16V	I101	HA-1151
R 007	3.9K	C007	0.002 UF	T001	AM RF COIL SR-400
R 008	1.5M	C008	0.01UF	T002	AM OSC COIL
R 009	3.9K	C009	0.047UF	T003	AM IFT -1
R 010		C010	0.047UF	T004	AM IFT -2
R 011	100K	C011	47UF16V	J001	
R 012	=70	C012	0.1UF16V		
R 013	470	C013	0.01UF		
R 014	3.9K	C014	0.01UF		

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R101	220 $\Omega$ 1/4W $\pm 5\%$	R119	100K 1/4W $\pm 5\%$	R138	100K 1/4W $\pm 5\%$	C116	1MF50WV	C135	4.7MF16WV
R102	820	"	R120	22K	"	R139	100K	C136	
R103	100	"	R121	18K	"	R140	10K	C137	4.7MF16WV
R104	47K	"	R122	1K	"	C101	0.047UF $\pm 50\%$	C119	100MF16WV
R105	680	"	R123	3.9K	"	C102	0.047	C120	0.22MF50WV
R106	330	"	R124	3.9K	"	C104	0.02	C121	0.47MF50WV
R107	560	"	R125	100K	"	C105	0.047	C122	0.02MF $\pm 5\%$ (H)
R108			R126	1.2K	"	C106	0.047	C123	0.02MF $\pm 5\%$ (H)
R109	330	"	R127	12K	"	C107	0.047	C124	0.47MF50WV
R110	10K	"	R128	1.2K	"	C108	0.047	C125	0.01MF $\pm 5\%$ (H)
R111	22K	"	R129	1.2K	"	C109	0.047	C126	4.7MF16WV
R112	22K	"	R130	47K	"	C108	0.047	C127	0.01MF $\pm 5\%$ (H)
R113	2.2K	"	R131	5.6K	"	C109	0.047	C128	4.7MF16WV
R114	47K	"	R132	5.6K	"	C110	0.047	IC101	MA1137
R115	.00	"	R133	47K	"	C111	4.7MF16WV	IC102	MA1156
R116	3.9K	"	R134	4.7K	"	C112	0.047MF $\pm 50\%$	L101	2.2 $\mu$ H
R117	330	"	R135	680	"	C113	180P $\pm 10\%$	L102	18 $\mu$ H
R118	5.6K	"	R136	680	"	C114	0.047MF $\pm 50\%$	VR101	4.7K
R119	A		R137	4.7K	"	C115	0.047MF $\pm 50\%$	VR102	4.7K
				B		C116	680P $\pm 10\%$	L.P.F	170 BLR
						C117		J101-3	DJUMP WIRE

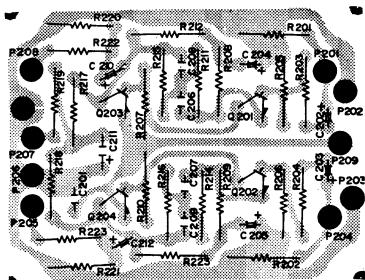
S1004J Main Amp.



SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R301	10K 1/4W ±5%	R316	3.9K 1/4W ±5%	C301	22.4μF 16WV(CTT)	VR301	100K A 1/2
R302	3.9K	"	R317	220K	"	C302	4.7μF 16WV
R303	220K	"	R318	220K	"	C303	0.047μF ±5%(M)
R304	220K	"	R319	27K	"	C304	0.047μF ±5%(M)
R305	27K	"	R320	150K	"	C305	0.001μF ±5%(M)
R306	150K	"	R321	470	"	C306	30P ±10%
R307	470	"	R322	10K	"	C307	4.7μF 16WV
R308	10K	"	R323	22K	"	C308	2.2μF 16WV(CTT)
R309	22K	"	R324	4.7K	"	C309	4.7μF 16WV
R310	4.7K	"	R325	10K	"	C310	0.047μF ±5%(M)
R311	10K	"	R326	4.7K	"	C312	0.001(M)
R312	4.7K	"	R327	680	"	C313	30P
R313	680	"	R328	1K	"	C314	4.7μF 16WV
R314	1K	"				C315	TC 30P
R315	10K	"				C316	TC 30P

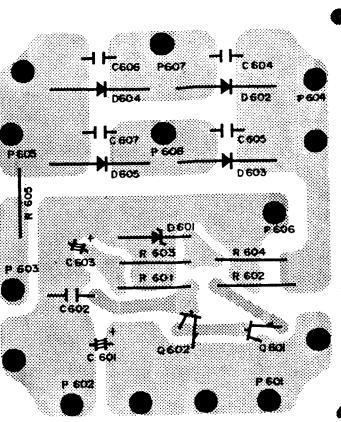


S1008K



SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R 201	220 K $\frac{1}{4}W \pm 5\%$	R 219	1 K $\frac{1}{4}W \pm 5\%$
R 202	220 K "	R 220	220 K "
R 203	4.7 K "	C 201	4.7 UF 16V
R 204	4.7 K "	C 202	4.7 UF 16V (T.T)
R 205	56 K "	C 203	4.7 UF 16V
R 206	56 K "	C 204	100UF 10V
R 207	27 K "	C 205	100UF 10V
R 208	560 "	C 206	0.0022 $\mu F \pm 5\%$
R 209	560 "	C 207	0.0022 "
R 210	27 K "	C 208	0.0082 "
R 211	33 K "	C 209	0.0082 "
R 212	100K "	C 210	4.7UF 16V
R 213	100K "	C 211	220UF 25
R 214	33 K "	C 212	4.7UF 16V
R 215	820K "	Q 201	2SC1681
R 216	820 K "	Q 202	2SC1681
R 217	15 K "	Q 203	2SA841
R 218	15 K A	Q 204	2SA841

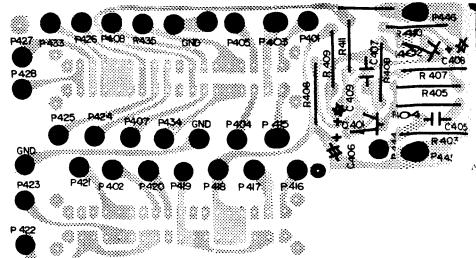
S1010J



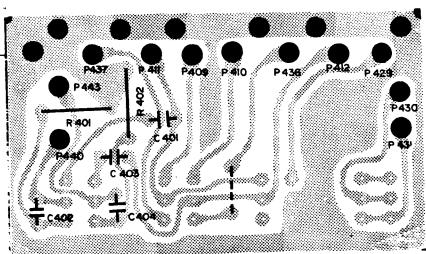
S1010 J

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R 601	100 $\Omega \frac{1}{4}W \pm 5\%$	D 601	MZ14 B
R 602	47 " $\frac{1}{2}W$ "	D 602	30D107U05B
R 603	4.7 K $\frac{1}{4}W$ "	D 603	"
R 604	820 $\Omega \frac{1}{4}W$ "	D 604	"
R 605	3.3 K $\frac{1}{4}W \pm 5\%$	D 605	"
C 601	220 $\mu F$ 16WV	Q 601	2SA794
C 602	0.1 $\mu F \pm 5\%$	Q 602	2SC733
C 603	220 $\mu F$ 16WV		
C 604	0.01 $\mu F \pm 5\%$		
C 605	0.01 "		
C 606	0.01 "		
C 607	0.01 "		

S1023



S1013 Sw.



S1013

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R401	8.2K $\frac{1}{4}W \pm 5\%$	C401	220P $\pm 10\%$
R402	8.2K "	C402	0.047 $\mu F \pm 5\%$
J401	JUMP WIRE	C403	0.047 "
		C404	220P $\pm 10\%$

S1023

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
R 403	3.3K $\frac{1}{4}W \pm 5\%$	C 405	0.047 $\mu F \pm 5\%$
R 404	3.9 K "	C 406	100 $\mu F$ 5W V
R 405	47 K "	C 407	100P
R 406	56 K "	C 408	100 $\mu F$ 6.3V
R 407	2.2K "	C 409	4.7 $\mu F$ 6W V
R 408	220K "		
R 409	82 K "		
R 410	1.5 K "		
R 411	33 K "		
R 412	220K "		

